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EXAMINER

HARM, NICKOLAS R

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

DETAILED ACTION

Summary

1. Claims 1, 3, 5, 8-9, 11-13, 18, and 21-31 are present and have been fully considered.

Allowable Subject Matter

2. The indicated allowability of claims 1, 3, 5, 8-9, 11-13, 18, and 21-31 is withdrawn in view of the newly discovered reference(s) to HOSSAIN et al. (US 5,009,746), disclosed by the applicant in the Information Disclosure Statement of 7/27/10. Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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5. Claims 1, 3, 5, 8, 9, 11-12, 18, and 21-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over EVANS et al. (US 5,501,761) in view of HOSSAIN et al. (US 5,009,746) and ONO (JP 2002-343760 A – English translation).

a. Regarding claims 1, 3, 11-12, 21-22, and 26-31 EVANS teaches an adherend that is adhesion bonded to a substrate (col. 4, lines 59-65) that is removed by placing the substrate and adherend in a container that can handle a large increase in pressure, along with supercritical carbon-dioxide, increasing the pressure in the container to as much as 5000 psi (34 MPa), and finally removing the adherend and substrate from the container (col. 4, lines 33-41 and 65-67). EVANS does not teach that the adherend is bonded to the substrate via an adhesive comprising at least one of polyvinyl acetal resins and ethylene-vinyl resins. However, HOSSAIN teaches a nearly identical process for removing adhesive from an adherend via supercritical carbon dioxide, wherein the adhesive comprises PVA polymers and copolymers, each of which comprise PVA resins, as well as EVA polymers and copolymers, each of which comprise EVA resins (col. 1, lines 45-50; col. 6, lines 41-54). It would have been obvious to one of ordinary skill in the art at the time of the invention to bond the protective coating of EVANS to the substrate via an adhesive comprising PVA or EVA resins, instead of self adhesion, as a functional equivalent alternate expedient adhesive, and to subsequently separate the adherend from the substrate via supercritical carbon dioxide because both EVANS and HOSSAIN are directed to removal of an adhesive via expansion/depressurization of comingled supercritical

carbon dioxide. It would have been obvious to one of ordinary skill in the art at the time of the invention that the container must have an air-tight seal in order to increase the pressure in the container without also increasing the pressure in the surrounding environment an equal amount, and that the pressure in the container must be released in order to remove the adherend and substrate from the pressurized container. ONO teaches the removal of an adherend bonded to a semiconductor wafer, glass material, or ceramic material by dissolving the adhesive between the adherend and substrate in an apparatus containing gas and water at a subcritical state, supercritical state, or any state there between (paras. 10-15). ONO explains that one of ordinary skill in the art would desire to use both supercritical gas and water in order to dissolve adhesive that bonds an adherent to a substrate because the water is a good chemical solvent but can dissolve the sides of the pressure container, and that the rate of this dissolution can be reduced by filling the pressure container with a supercritical gas before adding the solvent water (paras. 52-55).

b. Regarding claims 5 and 18, EVANS discloses the claimed invention except for the step of sealing a release agent in the container. It would have been obvious to one having ordinary skill in the art at the time the invention was made to seal a release agent in the container, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use. In re Leshin, 125 USPQ. The

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motivation to add a release agent is that they are readily available in the art and their characteristics are well known.

c. Regarding claim 8, EVANS teaches that carbon dioxide in the container becomes supercritical in the pressurization step (col. 4, lines 37-41).

d. Regarding claims 9 and 23-25, EVANS teaches that the protective adhesive coating can be a polymer (col. 1, lines 14-17) which can be a synthetic resin, or, alternatively, would render obvious the use of a resin as the adhesive to one of ordinary skill in the art at the time of the invention. EVANS teaches that the temperature in the container is adjusted (col. 4, lines 43-45), but does not explicitly teach that the temperature is greater than either 10 or 20 degrees Celsius below the glass transition temperature of the adhesive resin. However, the temperature to which the container is raised is a result-affected variable that depends on the adhesive resin being used. It would have been obvious to one having ordinary skill in the art at the time the invention was made to adjust the temperature in the container to greater than 20 degrees Celsius below the glass transition temperature of the adhesive resin, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

6. Claim 13 rejected under 35 U.S.C. 103(a) as being unpatentable over EVANS and ONO, as applied to claim 12 above, in further view of SHOHI et al. (US 6,383,647).

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e. As to claim 13, SHOHI teaches heating laminated glass with an interlayer film at 150 degrees Celsius (col. 2, lines 4-10), which is equivalent to firing the glass and interlayer film. While SHOHI doesn't teach firing the particular laminate glass interlayer film that results from the method of claim 12, it would have been obvious to one of ordinary skill in the art at the time of the invention to substitute the interlayer film of SHOHI for the interlayer film of EVANS because the two are analogous arts, the method of EVANS is not limited to one particular interlayer film, and it would have been obvious to one of ordinary skill in the art to try several different interlayer films in the method of EVANS, including the interlayer film of SHOHI.

Conclusion

1. Applicant's submission of an information disclosure statement under 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p) on 7/27/10 prompted the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 609.04(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from

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the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NICKOLAS HARM whose telephone number is (571)270-7605. The examiner can normally be reached on Mon-Thurs, 7:30a-5:00p EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Philip Tucker can be reached on (571)272-1095. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/NICKOLAS HARM/
Examiner, Art Unit 1791

/Philip C Tucker/

Supervisory Patent Examiner, Art Unit 1791